

REMARKS

Upon entry of this amendment, independent claim 5 with dependent claims 6-9 will be present in the application.

Claim 5 has been amended to delete the word "press" from the term "plug screw press", as suggested in the Office Action.

Claims 5-9 are now rejected under 35 U.S.C. § 103(a) as being obvious over U.S. 4,599,138 (Lindahl) in view of U.S. 3,841,465 (Miller, Jr. et al.) or U.S. 4,274,786 (Svensson et al.), the Office Action contending that "Lindahl discloses ... a digester (6), a plug screw conveyor (9) for the digested material, and a refiner (14)." However, this allegation is patently false.

As is known in the art, in a digester a typical pulp digester "the wood chips and the white liquor are fed into the upper end of the digester, with the interior of the digester being maintained at a relatively high pressure ... and high temperature ... During the period that the wood chips are in the digester, the white liquor reacts with the material in the wood chips to break down certain organic compounds in the wood chips so as to "delignify" the pulp." See U.S. Patent No. 5,536,367, Col. 1, lines 11-21. Lindahl teaches that "[t]he vertical **impregnating vessel 5** has two screws 6 for conveying the chips upwardly through the vessel. The pretreating solution which is instantaneously impregnated into the chips in this vessel is admitted via the duct 7. ... After progressing upwardly through the impregnating vessel 5, the **impregnated chips** enter the top of the vessel 8 and then move downwardly." Lindahl does not teach or suggest that the impregnating vessel 5 should be kept at a relatively high pressure or a relatively high temperature. More importantly, Lindahl specifically discloses that "the pretreating liquor is expressed from the chips during their passage through the feeder 9... This undiluted liquor contains the materials dissolved in the liquor in the course of the pretreatment, including chemicals, heavy metal compounds and other alkali-soluble extracted organic and inorganic substances in the lignocellulosic material, **but no lignin.**" Col. 7, lines 51-59. If the impregnating vessel 5 were a digester, the lignin removed from the pulp would have to be present in the liquor expressed during transport to the pressure vessel 11. Clearly, the impregnating vessel and twin screws 6 are **not** a digester, as alleged by the Office Action.

Claim 1 recites that the subject refining system comprises a dewatering device in the connection device connecting the digester to the refiner, "the dewatering device including a plug screw separating the lignocellulose raw materials into dewatered lignocellulose raw material and water in the form of condensate". While Lindahl discloses the use of screw feeder 3 and screw conveyor 9, neither of these devices is located in a connection device between a digester and a refiner. MPEP § 706.02(j) states "[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. ... the prior art reference (or references when combined) must teach or suggest all the claim limitations." See also MPEP §§ 2142 and 2143. Since none of the references cited in the Office Action disclose the connection device recited in claim 1, the rejection must be withdrawn.

The Svensson reference describes a system for conveying material from a first zone to a second zone with different gas pressures. Svensson does not teach or suggest dewatering such material, and further does not teach or suggest further treatment steps for the conveyed material. The principal function of the restraining device 15 in Svensson is to seal the conveyor gas tight during the initial startup of the Svensson system. As material is fed into the conveyor, the pressure of the material builds until a threshold pressure is achieved. At this point, hydraulic piston/cylinder 31 allows restraining plate 15 to be moved away from outlet opening 5 by the pressure of the material, exposing an annular opening allowing the material to exit the conveyor. The position of restraining plate 15 is manipulated to maintain the pressure of the material in the conveyor within a predetermined range. Accordingly, the flow of material through the conveyor varies continuously, and may even stop if the material pressure decreases sufficiently.

The Lindahl system and the subject system are both continuous systems. Accordingly, the varying flow rate produced by the pressure control system disclosed by Svensson would preclude this control system from being considered for use in a continuous systems by a person of ordinary skill in the art.

The Miller reference is similar to the Svensson reference, disclosing a device for sealing a first conveyor and a system having zones of different pressure with no dewatering. Miller also discloses that the solid particles are broken as a result of the pressure release in expansion chamber 24. Col. 3, lines 15-17. Since the Lindahl system


does not utilize expansion, there is no incentive to modify the Lindahl system to include the Miller apparatus.

"It is insufficient that the prior art disclosed the components of the patented device, either separately or used in other combinations; there must be some teaching, suggestion, or incentive to make the combination made by the inventor." Northern Telecom Inc. v. Datapoint Corp., 15 USPQ2d 1321, 1323 (Fed. Cir. 1990). "There must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination." Interconnect Planning Corp. v. Feil, 227 USPQ 543, 551 (Fed. Cir. 1985). There is nothing in the prior art that would suggest modifying the device of the Lindahl reference as suggested in the Office Action. Even if one were to modify Lindahl to include either Svensson or Miller, such combination would not produce the apparatus of claim 1 since such combination does not include the connection device recited therein. Accordingly, the rejections of record must be withdrawn.

The various dependent claims add additional features to the independent claims, and are therefore believed to be allowable. Also, the dependent claims are believed patentably distinct on their own merits as being directed to combinations not suggested by the references.

In view of the above-directed amendments and the proceeding remarks, prompt and favorable reconsideration is respectfully requested.

Respectfully submitted,
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